PATENT SPECIFICATION

Application Date: July 17, 1925. No. 18,327/25. **259,684**

Complete Left: April 17, 1926.

Complete Accepted: Oct. 18, 1926.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Printing Machines.

I, Walter Everett Molins, a citizen of the United States of America, of 2, Evelyn Street, Deptford, London, S.E. 8, do hereby declare the nature of this invention to be as follows:—

This invention relates to printing machines and more particularly to intaglio printing machines of the type wherein an engraved printing cylinder rotates in an ink bath, the surplus ink being removed by a suitable scraper, so that ink remains only in the engraved portion of the cylinder. Such machines are particularly useful for printing a moving continuous web of paper such as is employed on a cigarette machine of the continuous type.

In such printing machines it is usual to press the whole of the paper web into continuous contact with the surface of the printing cylinder, irrespective of the size of the engraved or printing portion on the latter, so that if the cylinder is improperly scraped at any part, portions of the web which should be free from printing become soiled by surplus ink.

The present invention has for its object to provide means for obviating this defect.

According to the invention the contact of the web with the printing cylinder is limited to those portions only of the web on which printing is desired.

The invention may be carried out in various ways. For example, the moving paper may be passed between the printing cylinder and a pressure roller, the latter having a boss or raised portion equal in length to the impression it is desired to produce on the paper. With this arrangement, the contact of the paper with the printing cylinder takes place only during the passage of the boss or raised portion on the pressure roller, the paper being out of contact with the cylinder at all other points.

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The pressure roller is timed so that the boss thereon presses the paper into contact with the cylinder only during the passage of the actual printing portion of the cylinder.

In another suitable arrangement, the pressure roller is mounted on a lever oscillating on a spindle and controlled by a cam roller which is spring pressed into engagement with a cam on the shaft which carries the printing cylinder. The cam is so arranged that it presses the roller to bring the web into contact with the cylinder during the actual printing period only.

In a further suitable arrangement, the offset method may be adopted. In this case, the paper is passed between a pressure roller and a transfer roller having raised portions which make contact with the printing portions of the printing cylinder, and transfer the print to the paper. The raised portions of the transfer roller correspond with the printing portions of the cylinder only, so that the web is out of contact with the rollers except at the actual moment of printing.

In all the above examples, the various pressure and transfer rollers may be of fibre, rubber or other suitable material, the engraved printing cylinder preferably being of steel or other hard material.

It will be understood that the invention is not limited to the printing of cigarette papers and further, that it may be applied to printing machines of other types.

Dated the 16th day of July, 1925.

ABEL & IMRAY,
30, Southampton Buildings, London,
W.C. 2,
Agents for the Applicant.

Price 25p

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COMPLETE SPECIFICATION.

Improvements in and relating to Printing Machines.

I, Walter Everett Molins, a citizen of the United States of America, of 2, Evelyn Street, Deptford, London, S.E. 8, do hereby declare the nature of this invention, to be particularly described and ascertained in and by the following statement:—

This invention is for improvements in or relating to cigarette making machinery, and more particularly to a printing device for use with cigarette making machines of the continuous rod type, and has for its object the provision of a printing device which is simple in its construction and efficient in its operation.

In cigarette making machinery the printing device usually employed, comprises a transfer roller rotatable by a ratchet mechanism and cam operated in such a manner as to periodically move out of an ink duct, into contact with the surface of a furnishing roller. The furnishing roller is adapted to reciprocate in the direction of its longitudinal axis and engage with three or more transfer rollers. The transfer roller which is the last to receive its supply of ink from the furnishing roller is adapted to engage with the embossed portion of a printing roller and supply the same with a quantity of ink.

The printing device referred to above occupies a considerable space upon a cigarette making machine, and it is an object of the present invention to reduce space occupied by such printing apparatus.

The present invention consists of a printing device for use upon a cigarette making machine of the continuous rod type, which comprises, an intaglio engraved roller adapted to receive ink from a duct, means (for example a doctor blade) adapted to remove excess of ink from the surface of said roller, and means adapted to bear upon said engraved roller and transfer, at regular spaced intervals, an impression from said engraved roller to a travelling web of cigarette paper.

Further the present invention consists of the use on a cigarette making machine of the continuous rod type of an intaglio engraved roller for printing at regular spaced intervals, upon a travelling web of cigarette paper.

It has hitherto been proposed to employ an intaglio engraved roller for printing upon a travelling web of material but in such cases the finished web has been substantially covered with printed matter and consequently slight defects produced upon the un-printed portions of the web are scarcely noticeable.

The invention is more particularly described with reference to the accompanying drawings, in which:—

Fig. 1 illustrates in elevation, a double colour printing device, constructed according to the present invention.

Fig. 2 illustrates a web which has been printed upon by the device illustrated in Fig. 1, and

Figs. 3 and 4, are modified constructions of the printing elements illustrated in Fig. 1.

Referring to the drawings, a moving web 1 of cigarette paper is passed between an intaglio engraved printing roller 2 and a pressure roller 3. The pressure roller 3 is provided with a boss or raised portion 4 equal in length to the impression it is proposed to reproduce upon the paper. With the above arrangement, the contact of the web 1 with the printing roller 2 takes place only during the time which the boss or raised portion 4 bears upon the web 1, the web at any other time being out of contact with the roller 2.

The roller 2 is adapted to receive ink from a duct 5, in which is mounted a furnishing roller 6, pivotally mounted in the duct 5 and adapted to be pressed into engagement with the roller 2 by means of the spring 7. Adapted to engage with the surface of the roller 2 is a doctor blade 8 which is reciprocated in the direction of the longitudinal axis of the roller 2. The rotation of the pressure roller 3 is timed so that the boss 4 presses the web 1 into contact with the surface of the roller 2 only during the actual printing operation.

The two printing elements illustrated in Fig. 1 are similarly constructed, and the rotation of the respective pressure rollers of the printing device is timed so that the printing on the web, is spaced apart by the desired distance in the manner illustrated in Fig. 2.

Referring to Fig. 3, the pressure roller 3 is carried upon an arm 9 which is pivotally mounted at one end upon a pin 10, and is adapted to engage at its free end with a spring 11 which is arranged to hold the roller 3 in engagement with the surface of the printing roller 2. Mounted on the arm 9 is a roller 12 which is adapted to engage with a cam 13, mounted on one face of the printing roller 2. The profile of the cam 13 is designed in such a manner that the pressure roller 3 is moved away from the printing roller 2 immediately the printing operation upon the web 1 has been effected.

The printing element illustrated in Fig. 4 is similarly constructed to the elements illustrated in Fig. 1, with the exception that a transfer roller 14 is interposed between the printing roller 2 and the web 1. The said transfer roller is provided with the boss, or raised portion 15, which periodically engages with the engraved portion of the printing roller 2 and receives an impression therefrom which is transferred to the web 1. The pressure roller 3 in this construction is preferably plain.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A printing device for use upon a cigarette making machine of the continuous rod type, which comprises, an intaglio engraved roller adapted to receive ink from a duct, means (for example a doctor blade), adapted to remove excess of ink from the surface of said roller, and means adapted to bear upon said engraved roller and transfer, at regular spaced intervals, an impression from said engraved roller to a travelling web of cigarette paper.

2. A printing device for use upon a cigarette making machine of the continuous rod type which comprises, an intaglio engraved roller adapted to receive ink from a duct means (for example a doctor blade), adapted to remove excess of ink from the surface of said roller, and means adapted to bear periodically upon said engraved roller and transfer at regular spaced intervals an impression from said engraved roller to a travelling web of cigarette paper.

3. A printing device for use upon a cigarette making machine of the continuous rod type which comprises, an intaglio engraved roller adapted to receive ink from a furnishing roller rotatably mounted in an ink duct, a reciprocating doctor blade, adapted to remove excess of ink from said engraved roller and a pressure roller adapted to be moved periodically towards and away from the engraved roller and press a web of cigarette paper periodically into engagement therewith, for the purpose hereinbefore described.

4. A printing device for use on a cigarette making machine of the continuous rod type as claimed in Claim 3, in which a cam mounted upon a face of the engraved roller, is adapted to move periodically the pressure roller out of engagement therewith.

5. In a cigarette making machine of the continuous rod type, the use of an intaglio engraved roller for printing, at regular spaced intervals, upon a travelling web of cigarette paper.

6. The printing device for use upon a cigarette making machine of the continuous rod type, constructed, arranged and adapted to operate substantially as hereinbefore described with reference to the accompanying drawings.

Dated the 16th day of April, 1926.

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Agent for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1926.

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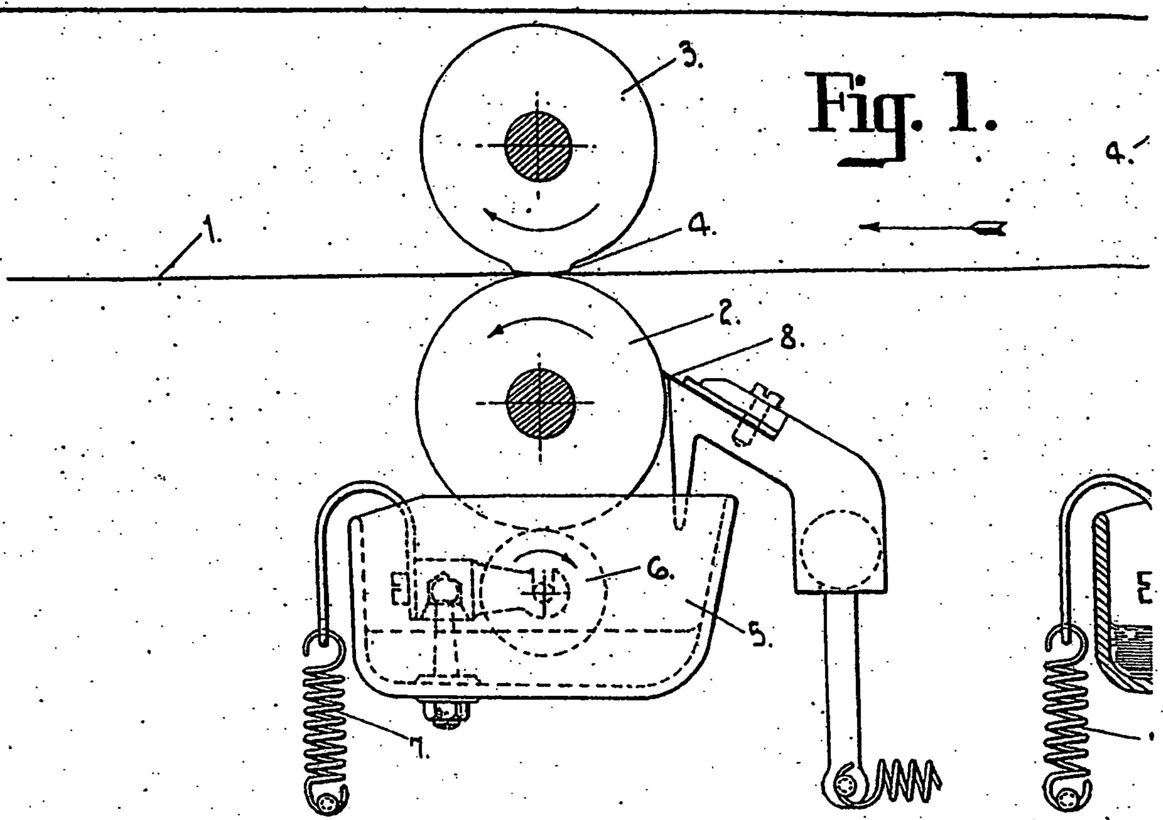


Fig. 1.

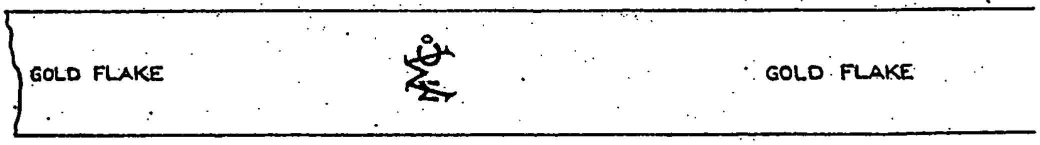


Fig. 2.

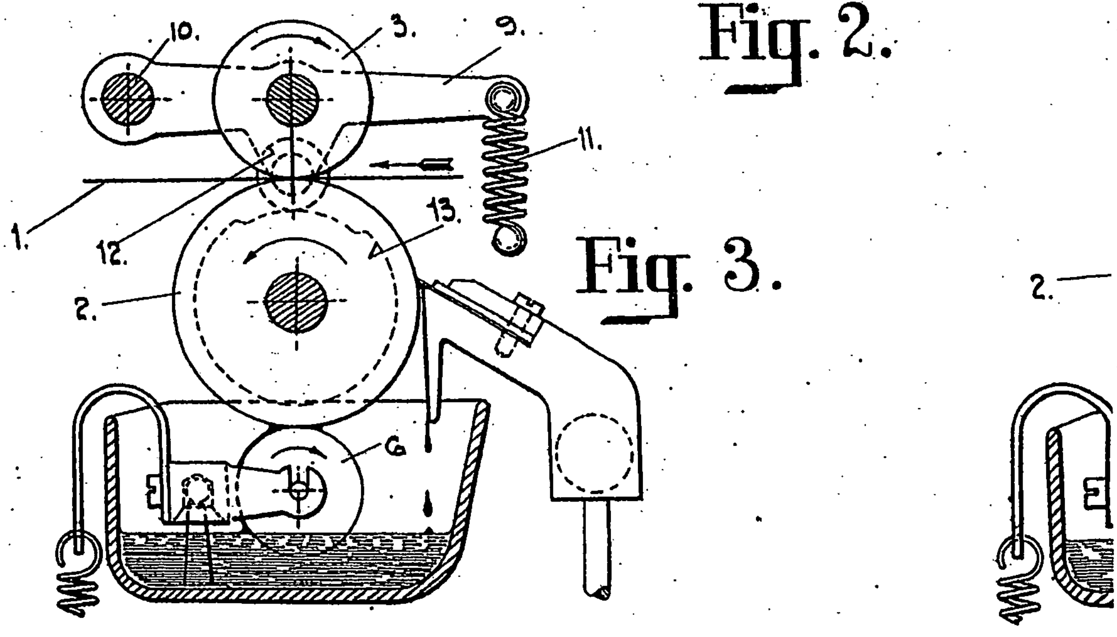
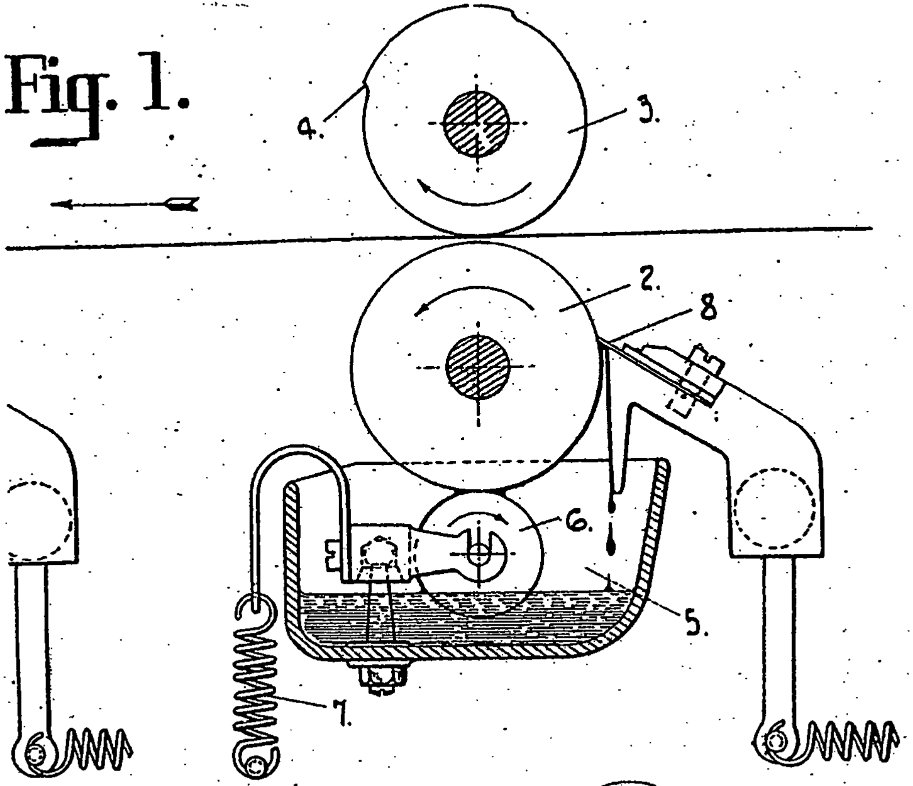


Fig. 3.

Fig. 1.



g. 2.

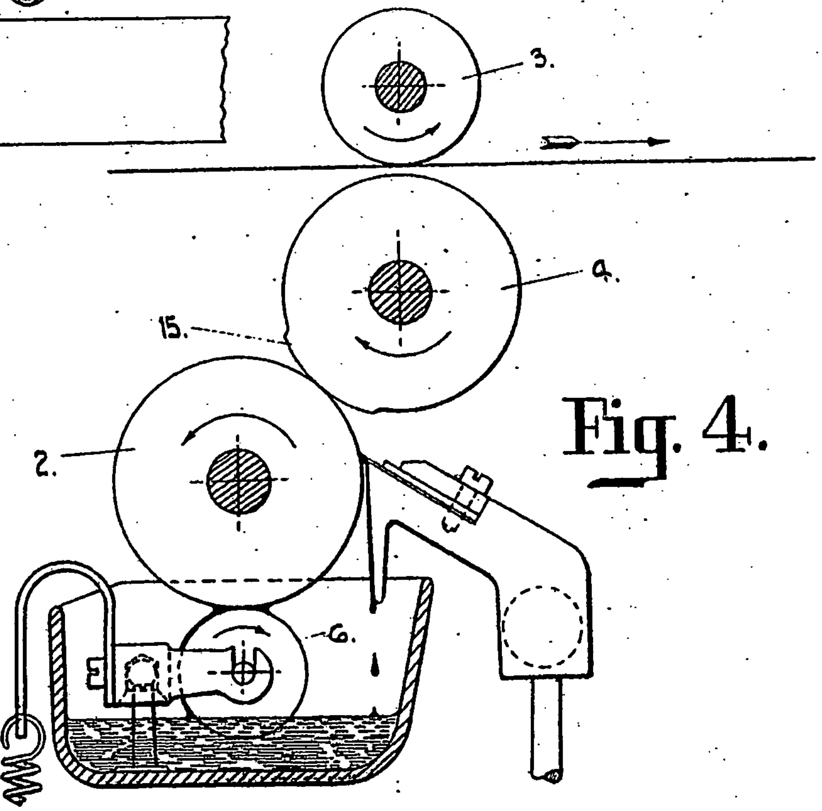


Fig. 4.

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259,684 COMPLETE SPECIFICATION

1 SHEET

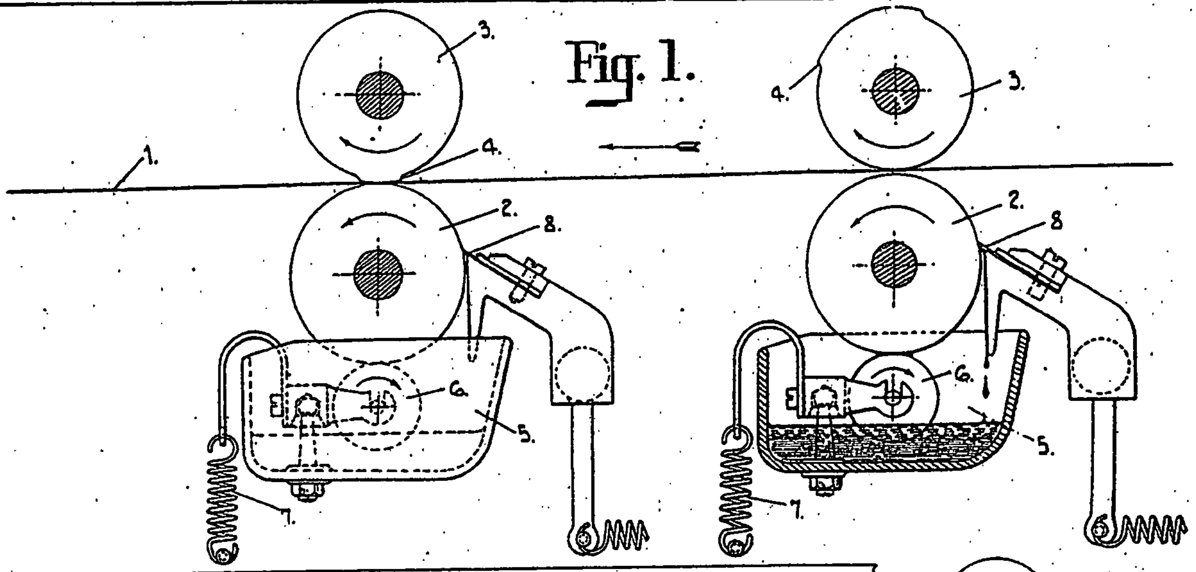

Fig. 1.

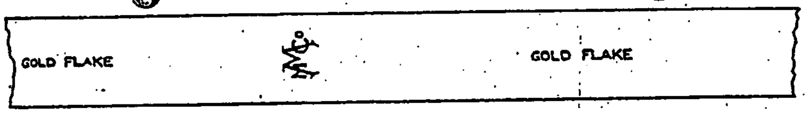

Fig. 2.

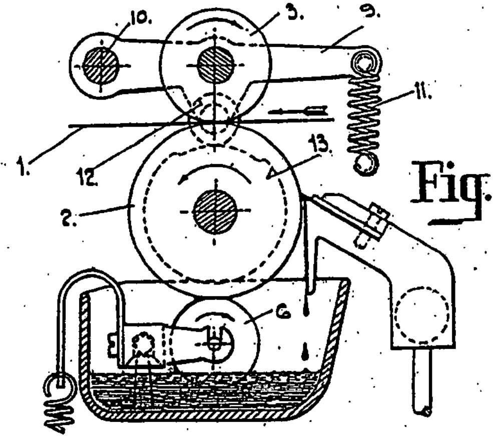

Fig. 3.

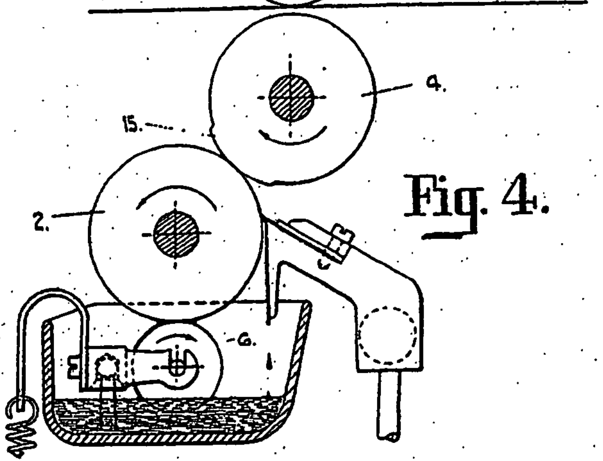

Fig. 4.

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